

- 1 1. A diaphragm tank, comprising:
2 an outer shell;
3 a flexible diaphragm;
4 a liner sealingly connected to the flexible diaphragm to define a bladder, the liner
5 including an orifice and a raised portion surrounding the orifice defining
6 an annular groove;
7 a passage fitting providing fluidic communication between an exterior of the outer
8 shell and the bladder and having a neck;
9 an o-ring disposed in the annular groove;
10 an annular holder mounted on the passage fitting and having a groove, the annular
11 holder adapted to rest on the raised portion and retain the o-ring within the
12 annular groove; and
13 a gasket disposed between the liner and the outer shell;
14 wherein a portion of the neck is bent to retain the holder against the o-ring,
15 thereby preventing fluidic communication between a space between the
16 liner and the outer shell and the bladder along an outer wall of the passage
17 fitting.
- 18 2. The diaphragm tank of claim 1, wherein the passage fitting is disposed partially
19 inside the outer shell and partially outside the outer shell and comprises a
20 shoulder adapted to restrict motion of the passage fitting into diaphragm tank.
- 21 3. A diaphragm tank, comprising:
22 an outer shell;
23 a flexible diaphragm;
24 a liner sealingly connected to the flexible diaphragm to define a bladder, the liner
25 including an orifice and a raised portion surrounding the orifice defining a
26 relief surface;
27 a passage fitting providing fluidic communication between an exterior of the outer
28 shell and the bladder and having a neck;

1 an o-ring disposed on the relief surface;
2 an annular holder mounted on the passage fitting and having a groove, the annular
3 holder adapted to retain the o-ring on the relief surface; and
4 a gasket disposed between the liner and the outer shell;
5 wherein a portion of the neck is bent to retain the holder against the o-ring,
6 thereby preventing fluidic communication between a space between the
7 liner and the outer shell and the bladder along an outer wall of the passage
8 fitting.

9 4. The diaphragm tank of claim 3, wherein the passage fitting is disposed partially
10 inside the outer shell and partially outside the outer shell and comprises a
11 shoulder adapted to restrict motion of the passage fitting into diaphragm tank.

12 5. A liner for use with a diaphragm tank and a through-wall connector, the through-
13 wall connector comprising a passage fitting having a neck and adapted to extend
14 into the diaphragm tank, an o-ring mounted on the passage fitting, an annular
15 holder mounted on the passage fitting and having an annular groove, wherein:
16 the liner has a raised portion defining an annular groove to receive the o-ring, and,
17 when the neck is bent over the holder, the annular groove on the holder
18 fits around the raised portion and the o-ring, thereby preventing fluidic
19 communication from an exterior side of the liner to an interior side of the
20 liner along an outer surface of the passage fitting.

21 6. A liner for use with a diaphragm tank and a through-wall connector, the through-
22 wall connector comprising a passage fitting having a neck and adapted to extend
23 into the diaphragm tank, an o-ring mounted on the passage fitting, an annular
24 holder mounted on the passage fitting and having an annular groove, wherein:
25 the liner has a raised portion having a relief surface on which the o-ring is
26 disposed, and, when the neck is bent over the holder, the annular groove
27 on the holder fits around the o-ring disposed on the relief surface of the
28 passage fitting, thereby preventing fluidic communication from an exterior

1 side of the liner to an interior side of the liner along an outer surface of the
2 passage fitting.
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